



METRON ELEDYNE

OPERATING INSTRUCTIONS

FOR ELECTRIC MOTOR CONTROLLER

TYPE MFP/CEPREVEN

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METRON ELEDYNE

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1. CAUTION

In order to avoid risk of personal **INJURY** or damage to the control equipment, **READ THIS MANUAL VERY CAREFULLY.** If after reading these instructions doubt exists, do not hesitate to contact a Metron Eledyne Engineer for further clarification. In the interests of safety pay special attention to the **CAUTION** notes listed below:

- i) If work has to be carried out on the electric motor or control equipment, isolate the control equipment from the A.C supply. If possible use a temporary label which draws attention to this fact.
- ii) Due to the nature of the equipment, the control system may start the electric motor at any time. Ensure all concerned are aware of this condition by means of an appropriate label, prominently displayed on the electric motor skid.
- iii) When the equipment is energised and on line, ensure all doors are closed and where applicable locked. If during commissioning the equipment is energised with the access door to the panel interior open, to avoid the risk of electric shock ensure that extra care is taken and the panel is not left unattended.

2. TRANSPORT & STORAGE INSTRUCTIONS

All of the control systems produced by Metron Eledyne are dispatched as complete units and are all protected against corrosion unless otherwise specified. When the control systems leave the factory they have been checked and packed for transportation whether it is by land or by air, the units are always packed in a very safe and secure manner.

When the controller is being moved adequate care should be taken. The unit should be moved by equipment that can handle the controllers weight and care should be taken to ensure the moving equipment has not been overloaded. The controller should be moved with the appropriate lifting straps or slings, or by eye bolts if the unit has them fitted.

The controller can be stored until ready for use as long as it has been placed in a vertical manner and is kept in a dry and safe environment to avoid damage to the unit. If the controller is stored for a longer period than 4 weeks arrangements must be made for the unit to contain moisture deterrents so not to damage any of the controllers electric circuits. The moisture deterrent must be removed and discarded once the unit is in full operation.

**MISUSE OF THIS EQUIPMENT
OR MAN HANDLING MAY RESULT
IN SERIOUS INJURY OR DEATH**

3. GENERAL

These operating instructions are applicable to the Metron Eledyne electric motor control panel type MFP/CEPREVEN.

The front panel lamps are of the Light Emitting Diode type and as such are reliable in service. The volt free contact outputs facilitate remote monitoring.

DEFINITION OF TERMS USED THROUGHOUT OPERATING INSTRUCTIONS

VISUAL	PILOT LAMP OR METER.
AUDIBLE	ELECTRONIC SOUNDER.
VOLT FREE	REMOTE INDICATING VOLT FREE CHANGEOVER CONTACTS.
STANDBY	SYSTEM AWAITING AN OPERATIONAL EVENT.

4. CONTROLLER OPTIONS

The MFP/CEPREVEN controller is available with a variety of different factory fitted features. These features are listed below:-

- i) Anti-condensation Heater.
 A heater, thermostat and fuse fitted to the inside of the control cabinet and powered by the A.C input.
- ii) Pressure Switch
 An externally mounted pressure switch.
- iii) Integral Jockey Pump control
 Jockey pump output with JP fault indicator and Mode selector switch

5. ENERGISING THE CONTROL SYSTEM

Before Energising the controller all care should be made to ensure that the control system has not been damaged during shipping, if this is the case Metron Eledyne should be contacted immediately.

Before connecting the power supplies. Ensure by reference to the circuit diagram, that the installation has been correctly carried out. Please note, Metron Eledyne recommend that a D Type circuit breaker is fitted for incoming mains supply, upstream protection.

When applying power to the controller for the first time, the following steps should be performed in this sequence:

1. Check that the contacts of the start pressure switch, terminals PL2,4 & PL2,5, and the auxiliary remote start, terminals PL2,2 & PL2,3 are ALL closed, otherwise fit temporary links
2. Check that <40% Priming tank start input on terminals PL2,10 & PL2,11 are open.
3. Apply A.C power, with the mode switch in off mode

Visual	Power ON – Green Not in Auto Mains Supply Healthy
Option:	Jockey pump power on
Voltmeters	Show Voltage
Volt free	Not in Auto Mains Supply Healthy

Lamp Test

When pressing the lamp test push button, the controller's main board performs a simple self test function, and if the controller is healthy then all the lamps will be illuminated. It is suggested that this push button is pressed after the controller is first switched on.

The controller is now ready to be commissioned.

Before commissioning commences we strongly recommend that the rest of this manual be read.

6.. MANUAL START

Turn the mode switch to manual mode	No Change
Press manual start P.B	Line and star contactors energise
After Star / delta time	Line and delta contactors are on
Visual	Motor Run
Visual	Shows motor running current
After 10 seconds	(if pressure switch running does not close)
Visual	Failed to start – flashing
Volt free	System Fault
Audible	Muteable, Lamp steady
When the running at pressure switch closes	
Visual	Pump running at pressure
Volt Free	Pump Running at Pressure
Press reset P.B	
Visual	Failed to start – Clears
Volt free	System fault – clears
Press stop P.B,	Pump running conditions clear

7.. AUTOMATIC START:

Turn the mode switch to Auto	
Visual	Not in Auto – clears
Volt free	Not in Auto – Clears
When the pressure switch contacts opens OR Remote start input open	
Visual	Pump on Demand
Volt free	Pump on demand

After Star delta timer has elapsed	Line and star contactors energise
	Line and delta contactors energise

Note: The star delta timer is adjusted by the on board potentiometer VR2, and is clearly identified on the main logic board type PC265 main label. This potentiometer is continuously monitored by the microprocessor, but it should be adjusted only while the motor is stopped and while there is no pump on demand.

When the pump running at pressure contacts close

Visual	Pump running at pressure
Volt free	Pump running at pressure

When the remote start and pressure switch inputs are both closed:

Visual	Pump on demand – clears
Volt free	Pump on demand - clears

Press the stop P.B

Motor stops
Pump running conditions clear
Standby

Note: The stop push button will only stop the electric motor when ALL the start conditions have cleared.

8.. FAULT CHANNELS:

Water Level < 40%

When the water level <40% switch closes:

Visual	Water level <40% - flashes
Volt free	System Fault
Alarm	Muteable, Lamp steady when muted

When the water level <40% switch opens

Visual	Water level <40% - clears
Volt Free	System fault – clears

Water Level < 60%

When the water level <60% switch closes:

Visual	Water level <60% - flashes
Volt free	System Fault
Alarm	Muteable, Lamp steady when muted

When the water level <60% switch opens

Visual	Water level <60% - clears
Volt Free	System fault – clears

Priming Tank < 40%

When the Priming Tank level <40% switch closes:

Visual	Priming Tank level <40% - flashes
Volt free	System Fault
In Auto mode,	Motor starts, and runs
Alarm	Muteable, Lamp steady when muted

When the Priming Tank level <40% switch opens

Visual	Priming Tank level <40% - clears
Volt Free	System fault – clears

Press stop P.B to stop motor

9..PHASE REVERSAL

When the three mains supply is either connected incorrectly, or if the phase rotation is incorrect:

After 5 seconds:

Visual	Phase reversal – Flashes
Volt Free	System fault
Alarm	Muteable – Lamp steady when muted

When the phase rotation is correct:

Visual	Phase reversal – clears
Volt free	System fault – clears
Standby,	

Note: Phase reversal is non operational if the phase loss alarm is present. Also, the controller will still attempt to start the electric motor when the phase reversal alarm is present.

10..PHASE LOSS

If any phase is missing, or if the line to line voltage falls below 340v, then:

After 3 second

Visual	Mains Supply failure – Flashes Mains supply Healthy – off
Volt free	System Fault Mains Supply Healthy – off
Alarm	Muteable – lamp steady when Muted

When all three mains phases are present and above 340v, then:

Visual	Mains Supply failure – Off Mains supply Healthy – On
Volt free	System Fault - off Mains Supply Healthy

11..BATTERY CHARGER AND BACKUP

The main board type PC265 is complete with an integral battery charger for connection to a battery. The battery is located within the control panel is a low maintenance type. The battery charger is a constant voltage constant current type and is limited to around 700mA output.

The circuit is arranged so that when the mains supply is completely removed, the battery then provides the power to the control circuit. This enables the alarm, volt free contacts and indicators to still function. The current drain on the battery while it is providing power is around 100 to 150mA in standby. (Standby is defined as 2 indicators, alarm and 1 volt free)

12...JOCKEY PUMP (Option)

Turn the jockey pump mode switch to manual

Press jockey pump start P.B

Jockey pump runs, direct on line
Jockey pump starts counter increments

Press jockey pump stop P.B

Jockey pump stops immediately

Turn the jockey pump mode switch to Automatic

When the jockey pump pressure switch closes

Jockey Pump runs, direct on line
Jockey pump starts counter increments

Jockey Pump Overload

In the event of a jockey pump over current alarm

Visual

Jockey Pump Fault – flashes

Volt free

System fault

Alarm

Muteble – lamp steady when muted

If there is a Jockey pump control circuit fault, then:

F13 will blow

Visual

Jockey pump power – off
Jockey pump fault – flashes

Volt free

System Fault

Alarm

Muteble – lamp steady when muted

When the control circuit fault has cleared, replace F13

Visual

Jockey pump power – on
Jockey pump fault clears

Volt free

System fault – clears

Standby

13..Anti-Condensation Heater (Option)

When the ambient temperature is below the thermostat

Temperature setting

Anti-condensation heater – warms

When the ambient temperature is above the thermostat

Temperature setting

Anti-condensation heater – cools

14.. Disposal

Metron Eledyne Ltd are a member of a compliance scheme under the Waste Electrical and Electronic Equipment regulations which is applicable in all EEC countries. At the end of the service life of the equipment the company offers to collect and dispose of this equipment in accordance with regulations in force under the Registration Number :

WEE/CF0105WV.

(Equipment must be suitably packed for collection by courier if outside the UK)

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